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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/697,950      | 10/31/2003  | Thomas M. Golner     | 87304.1980          | 7624             |

7590 01/17/2007  
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| EXAMINER |
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BHAT, NINA NMN

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| ART UNIT | PAPER NUMBER |
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1764

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 01/17/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/697,950 | <b>Applicant(s)</b><br>GOLNER ET AL. |  |
|                              | <b>Examiner</b><br>N. Bhat           | <b>Art Unit</b><br>1764              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18 and 20-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18 and 20-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Applicant's arguments and amendments of October 19, 2006 has been fully and carefully considered. The examiner acknowledges cancellation of claim 17 and 19 and withdraws the objections made regarding the drawings. Accordingly the objections made over the drawings and first paragraph non-enabling has been withdrawn and moot. With respect to applicant's arguments regarding the rejections made under 103(a) over the Golner et al. 6,581,694 patent is somewhat persuasive. A new search has been conducted based on the amended claims. Claims 1-16, 18 and 20-26 remain pending the application and applicant's amendments necessitate a new ground of rejection.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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4. Claims 1-16, 18 and 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-2292 machine translation provided in combination with Golner et al. 6,581, 694 further in view of Magnier USP 5,946,171.

JP 8-2292 teach an on-load tap changer which includes a gas analyzer which analyzes the mixing of gas of the insulating oil in the insulating material contain, and determining whether an abnormality of the type of gas is detected and then is connected to a diverter switch and tap selector changer which is changed based on the abnormalities detected. Specifically the gas analyzer is used to detect whether there is an abnormality in the transformer or whether there is a problem with an on-lead tap changer. Specifically in column [0015 to [0018] An on load tap changer 20 is hung from top tank covering 1a and is attached in the interior of the transformer tank 1. An on-load tap changer is equipped with a diverter switch and a tap selector, which are both, stored in the insulating material container 7 with which insulating oil is filled. The insulating material container 7 is sampled through oil feed tube 10, and the diagnostic equipment 30 which diagnoses abnormalities form a gas analysis result is attached. A judgment is made by the analyzer of the gas extractor (12) for analyzing the gas currently mixed in insulating oil. Oil is extracted from the on-load tap changer, the sent oil is sent to a gas extractor (12) which includes a gas permeable membrane (13) of a macromolecule, which dissociates through the filter member and the oil is accumulated in the measuring tube 15.

Although JP 8-2292 does not teach that a non-reactive gas is injected into the load tap changer, there is a specific teaching that there is gas present in the mineral oil,

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the gases present are detected and are analyzed in order to evaluate the conditions of the load tap changer and/or transformer. JP 8-2292 does not specifically teach injecting nitrogen or a nonreactive gas into an ullage in the load tap changer.

Golner et al. 6,581,694 teaches a method and system for controlling the supply of nitrogen to in the ullage of a power transformer that has its windings submerged in oil. A nitrogen generator supplies nitrogen from a nitrogen reservoir from which it is distributed to the ullage as well as to accessories such as load tap changer or a control box.[Note the abstract]. There is a clear suggestion and teaching in Golner et al. that the system that controls nitrogen pressure in the ullage of power transformer having its windings submerged in oil can also be used in other electrical power handling equipment with electrical components submerged in oil with a ullage[Note Column 2, lines 50-55]. It is the position taken by the examiner that the power transformer is only a preferred example of the type of electrical power handling equipment wherein a nitrogen generator can be used for injecting nitrogen into the ullage so that there are means to expel the vapor phase contaminants from the ullage of the power transformer or from a tap load changer. Golner et al. specifically teaches that it is within the scope of the invention to use the nitrogen generator and supplying nitrogen to an electrical power handling equipment which includes power transformers with oil. Golner et al. teach that the nitrogen generator includes a high pressure nitrogen source, a nitrogen reservoir, a pressure control device, check valve, pressure transducer and a manifold.[Note Column 3, lines 8-38] The nitrogen generator includes a prefilter, a compressed air supply, a separation membrane, a waste gas port, a nitrogen port and a

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temperature regulator. A prefilter filters particulate and vapor contaminates harmful to the separation membrane.

Magnier teaches a method and device for prevention against explosion and fire or electrical transformers wherein the electrical transformer is filled with a mineral oil. A pressure sensor and vapor sensor are coupled to the enclosure to monitor the pressure and vapor content of the mineral oil in the enclosure. An increase in pressure of the enclosure can indicate abnormalities. If an abnormalities is detected the mineral oil coolant is drained from the system. Specifically taught in Magnier is to inject an inert gas such as nitrogen into the bottom of the transformer which windings are insulated in a mineral oil or coolant, the injection of the inert gas causes stirring of the coolant (mineral oil) which equilibrates the temperature and makes it possible to flush or expel oxygen present in proximity to the fluid. A sensor detects the presence of the coolant vapor, the deflagration due to an electrical insulation break rapidly causes the release of the vapor which is detected from the fluid within the enclosure. The vapor sensor is therefrom highly expedient in detecting a break in the electrical insulation. Magnier further teaches that nitrogen injection in an on load tap changer has also been contemplated and that there are means provided so that the expelled gas from the on load tap changer can be prevented from exploding by using a trigger and gas sensor wherein the inert gas is used to expel gases from the fluids contained in with the transformer or on load tap changer.

It is maintained that the combined teachings of JP 8-2292, Golner et al. and Magnier fully teaches and suggest providing an apparatus which includes an on load tap

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changer which contains mineral oil, an orifice to inject an inert gas, non-reactive gas specifically nitrogen into the on load tap changer for expelling a vapor phase contaminant from the mineral oil from the ullage in the load tap changer and teaches monitoring, gas analysis pressure analysis and control which monitors the conditions inside the load tap changer which has been claimed specifically in independent claims 1, 20 and 24. It is maintained that the art recognizes and teaches an apparatus and process for controlling the environment specifically the oil within a load tap changer which includes means for urging nitrogen into an ullage in the load tap chamber, and means for monitoring the conditions inside the load tap chamber and means for expelling vapor phase contaminants from the ullage in the load tap changer. With respect to applicant dependent claims, the which separates nitrogen from air, pressure regulation, output venting rate these limitations would not impart patentability to the invention as these are all obvious expedients in injecting gases, withdrawing gases, preventing explosion in electrical handling equipment being insulated in mineral oil which has been taught and recognized by the prior art. JP 8-2292, Golner et al. and Magnier when read in light of their specification, claims, drawings, background of the invention teaches an apparatus and method capable of injecting a nonreactive gas into a LTC, expelling entrained vapor phase contaminants from the LTC ullage which will prevent explosion and/or arcing deleterious effects to the LTC and other electrical power handling equipment which is insulated by mineral oil. JP 8-2292 teaches specifically using gas analysis and removing gases from mineral oils specifically from an LTC, Golner et al. teaches injecting nitrogen into power handling equipment for the same reasons and

using the same type of nitrogen generating equipment used specifically in the LTC as claimed. There is a suggestion in Golner et al. that the power generating equipment is not limited to only power sources or transformers but can include a LTC. Magnier teaches specifically injecting nitrogen into a power handling system such as a transformer and LTC combination, there is a specific teaching in Magnier to inject nitrogen into a the LTC. The prior art renders applicant's invention as a whole obvious to one having ordinary skill in the art at the time the invention was made.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rice '861 teach a method for a reliability assessment, failure prediction and operation condition of power handling equipment specifically



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transformers and LTC's. Nichols '998 and '201 teach using a fluorescent trace material which is used to indicate electrical contact or interrupter assembly wear. EP 0957496 teach power and/or distribution transformer equipped with on load tap changer which includes a filter for reducing chemically reactive gas species generated by the decomposition of the fluids. Waters et al. teach an apparatus and method for extracting and analyzing gas using a tubular membrane extractor column connected to oil filled electrical component such as a transformer. Golner et al. '287 teach an oil sampling system for an electrical power device which the oil flows through the sampling device in a closed loop with the oil containing apparatus of the electrical power device.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 571-272-1397. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
N. Bhat  
Primary Examiner  
Art Unit 1764

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